REMARKS

Applicants respectfully request that the above-identified patent application be reexamined and reconsidered pursuit to 37C.F.R. § 1.116. Claims 1-23, and 32-36 are still pending in the present application.

In a final Office Action dated August 22, 2003 (hereinafter "Office Action"), Claims 1, and 3-9 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,999,185 to Kato et al. (hereinafter "Kato"). Claims 2, 19, 20, 22, and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of U.S. Patent No. 6,091,410 to Lection et al. (hereinafter "Lection"). Claims 10-18, 32, and 34-36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of U.S. Patent No. 5,999,185 to Robertson et al. (hereinafter "Robertson"). Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Lection, and further in view of U.S. Patent No. 4,988,981 to Zimmerman et al. (hereinafter "Zimmerman"). Lastly, Claim 33 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Robertson, and further in view of Lection.

In this response to the Office Action, applicants respectfully request reexamination of the present application pursuant to 37 C.F.R. § 1.116. For at least the reasons set forth below, applicants respectfully request allowance of all pending claims.

Rejections Under 35 U.S.C. § 102

Claims 1, and 3-9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kato. Applicants respectfully disagree. To establish a proper rejection under 35 U.S.C. § 102(b), "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (August 2001). Section 2131 of the M.P.E.P. further states that, "the *identical invention must be shown in*

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as complete detail as is contained in the ... claim." *See Richardson v. Suzuki Motor Co.,*
868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). For the
reasons that will now be discussed in detail, applicants assert that Kato fails to teach or suggest
the recited combination of features of Claims 1, and 3-9.

<u>Claim 1</u>

With regard to amended Claim 1, applicants claim a method for providing a virtual
environment for simulating the arrangement of a plurality of parts into an assembly. The method
defines a combination of steps, including the steps of:

> creating a model in a design environment for each part, each model
> having a geometry that corresponds to a part;

> translating each model into a virtual part in the virtual environment, the
> design environment being integrated with the virtual environment;

> obtaining data representing one or more physical properties, including
> mass properties, of at least one virtual part, wherein the data
> representing one or more physical properties is dynamically linked to
> the model in the design environment;

> determining a variable representative of a force associated with at least
> one virtual part, wherein the variable representative of the force is
> calculated by the use of the data representing one or more physical
> properties;

> enabling each virtual part to be positioned in an assembly within the
> virtual environment, wherein the positioning of each virtual part
> enables a motion simulation to be performed for the arrangement of
> the plurality of parts into the assembly; and

> controlling the motion simulation by limiting the movement of at least
> one virtual part if the variable representative of a force is greater than
> a predetermined value.

As defined in amended Claim 1, applicants define a method that obtains data representing
mass properties of at least one virtual part, wherein the data representing one or more physical
properties is dynamically linked to the model in the design environment, and uses the mass

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properties to calculate a variable representative of a force associated with the virtual part. As described on pages 32-35 of applicants' specification, the present invention utilizes this claimed method to implement a physical based model that can simulate physical constraints without using computationally expensive collision detection. *Applicants' Specification*, page 33, lines 1-5.

The office action contends that Kato teaches "obtaining data representing one or more physical properties" and "determining a variable representative of force." The office action cites column 6, lines 49-52 and column 16, lines 28-37 to support such contentions. Applicants respectfully disagree with the Office Action's contentions that Kato teaches such features. Specifically, nowhere in Kato, and in particular, in either column 6, lines 49-52 or column 16, lines 28-37, does it teach that the mass property data of at least one virtual part is obtained. To the contrary, Kato, at column 21, lines 32-39, teaches a system that only obtains material property data of an object that relate to various human senses, such as visual sense, auditory sense, tactile sense, olfactory sense, and gustatory sense, all of which do not teach or suggest obtaining mass properties of the virtual part. Since Kato does not teach obtaining the mass properties of the virtual part, Kato cannot teach that the mass properties of the virtual part is utilized to determine a variable representative of force. Moreover, Kato fails to teach or suggest that the data obtained is dynamically linked to the model in the design environment.

It is clear that Kato fails to teach or suggest the recited combination of features of Claim 1, including "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design environment" and "determining a variable representative of a force associated with at least one virtual part, wherein the variable representative of the force is calculated by the use of the data representing one or more physical

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properties." Thus, applicants respectfully submit that a rejection under 35 U.S.C. § 102(b) cannot be appropriately applied to Claim 1 because the cited reference does not disclose each element. For at least the reasons stated above, applicants respectfully request that this rejection be withdrawn. Accordingly, applicants respectfully requests withdrawal of the rejections under 35 U.S.C. § 102(b) of Claims 3-9, which depend from allowable Claim 1.

Rejections Under 35 U.S.C. § 103

Claims 2, 19, 20, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Lection. Claims 10-18, 32, and 34-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Robertson. Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Lection, and further in view of Zimmerman. Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato in view of Robertson, and further in view of Lection. Applicants respectfully traverse the rejections to these claims. Under Section 103, the *prima facie* case of obviousness is established only if the cited references, alone or in combination, teach each of the limitations of the recited claims. *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993). For the following reasons, Claims 2, 10-18, 19, 20, 22, 23, and 32-36 are allowable over the cited prior art.

Dependant Claim 2

Dependent Claims 2 depends from Claim 1, and thus, contains all of the elements of Claim 1. Therefore, for at least the same reasons as discussed above with regard to Claim 1, Claim 2 contains combinations of features neither teach nor suggested by Kato. Additionally, Lection fails to correct the deficiencies in Kato, namely, Lection fails to teach "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design environment; and determining a variable representative of a force associated

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with at least one virtual part, wherein the variable representative of the force is calculated by the use of the data representing one or more physical properties." Accordingly, applicants respectfully request withdrawal of the pending rejection under 35 U.S.C. § 103(a) with regard Claim 2.

Dependent Claims 10-18

Dependent Claims 10-18 depends from Claim 1, and thus, contain all of the elements of Claim 1. Therefore, for at least the same reasons as discussed above with regard to Claim 1, Claims 10-18 contain combinations of features neither teach nor suggested by Kato. Additionally, Robertson fails to correct the deficiencies in Kato, namely, Robertson fails to teach "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design environment; and determining a variable representative of a force associated with at least one virtual part, wherein the variable representative of the force is calculated by the use of the data representing one or more physical properties." Accordingly, applicants respectfully request withdrawal of the pending rejections under 35 U.S.C. § 103(a) with regard Claims 10-18.

Independent Claim 19

Amended Claim 19 recites a system that includes program code for simulating the arrangement of a plurality of parts into an assembly in a virtual environment, which when executed, perform the steps of: "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design environment; and determining a variable representative of a force associated with at least one virtual part, wherein

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the variable representative of the force is calculated by the use of the data representing one or more physical properties."

Therefore, for at least the same reasons as discussed above with regard to Claim 1, Claim 19 contains combinations of features neither teach nor suggested by Kato. Additionally, Lection fails to correct the deficiencies in Kato, namely, Lection fails to teach "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design environment; and determining a variable representative of a force associated with at least one virtual part, wherein the variable representative of the force is calculated by the use of the data representing one or more physical properties." Accordingly, applicants respectfully request withdrawal of the pending rejection under 35 U.S.C. § 103(a) with regard Claim 19.

Dependent Claim 21

By virtue of its dependency from Claim 19, applicants also submit that Claim 21 is in condition for allowance. Applicants have reviewed Kato, Lection, and Zimmerman, and are unable to find where the references suggest a method that is remotely related to a virtual environment for simulating the arrangement of a plurality of parts, where "data representing mass properties" is obtained and used for "determining a variable representative of a force associated with at least one virtual part." Thus, applicants respectfully submit that Claim 21 is in condition for allowance.

Independent claim 32

Amended Claim 32 recites a method that includes "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design

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environment; and determining a variable representative of a force associated with at least one virtual part, wherein the variable representative of the force is calculated by a product of the data representing the mass properties and a data value representative of an angular acceleration of at least one virtual part."

Therefore, for at least the same reasons as discussed above with regard to Claim 1, Claim 32 contains combinations of features neither teach nor suggested by Kato. Additionally, Robertson fails to correct the deficiencies in Kato, namely, Robertson fails to teach "obtaining data representing one or more physical properties, including mass properties, of at least one virtual part, wherein the data representing one or more physical properties is dynamically linked to the model in the design environment; and determining a variable representative of a force associated with at least one virtual part, wherein the variable representative of the force is calculated by a product of the data representing the mass properties and a data value representative of an angular acceleration of at least one virtual part." Thus, applicants respectfully request withdrawal of the pending rejection under 35 U.S.C. § 103(a) with regard Claim 32. Accordingly, applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a) of Claims 34-36, which depend from allowable Claim 32.

Dependent Claim 33

By virtue of its dependency from Claim 32, applicants also submit that Claim 33 is in condition for allowance. Applicants have reviewed Kato, Robertson, and Lection, and are unable to find where the references suggest a method that is remotely related to a virtual environment for simulating the arrangement of a plurality of parts, where "data representing mass properties" is obtained and used for "determining a variable representative of a force associated with at least one virtual part." Thus, applicants respectfully submit that Claim 33 is in condition for allowance.

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CONCLUSION

In view of the foregoing amendments and remarks, it is submitted that the present application is now in condition for allowance. Reconsideration and reexamination of the application and allowance of the claims are solicited pursuant to 37 C.F.R. § 1.116. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact applicants' undersigned attorney at the number below.
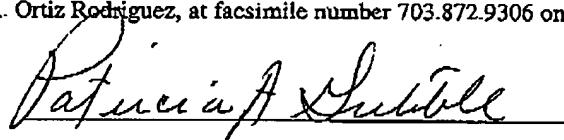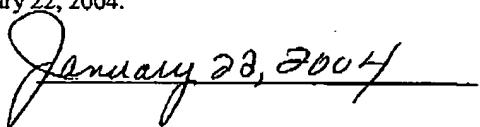
Respectfully submitted,

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I hereby certify that this correspondence is being transmitted via facsimile to the U.S. Patent and Trademark Office, Group Art Unit 2125, Examiner Carlos R. Ortiz Rodriguez, at facsimile number 703.872.9306 on January 22, 2004.

Date: _January 22, 2004_

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